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Project	Improvements to roads and drains at Agrahara and surrounding area in Ward No 05 Byatarayanapura sub division
Client	Bruhat Bengaluru Mahanagara Palike
Consultant	TEJUS CONSULTANTS, BANGALORE
Contractor	M/S Benaka Developers and Projects Pvt Ltd

FLAKINESS AND ELONGATION INDICES (IS 2386, PART 1)

Type of Material	WMM	**Proposed Use**	**WMM**
Sample Location	Kuvempu Badavane Mn Rd	**Date of Sampling**	**15-10-2021**
		Date of Testing	**16-10-2021**

Size of aggregate		**Flakiness Index**		**Elongation Index**	
Passing through IS sieve, mm	**Retained on IS sieve, mm**	**Total wt. of aggregate retained on sieves (A) gms.**	**Wt. of aggregate passing from Flakiness gauge (B) gms**	**Wt. of aggregate retained on Flakiness gauge (C) gms**	**Wt. of aggregate retained on Elongation gauge after retained on Flakiness gauge(D)gms**
63.0	50.0	0	0	0	0
50.0	40.0	0	0	0	0
40.0	31.5	0	0	0	0
31.5	25.0	0	0	0	0
25.0	20.0	0	0	0	0
20.0	16.0	618	85	520	70
16.0	12.5	1135	120	948	112
12.5	10.0	775	56	744	53
10.0	6.3	620	69	570	49
Total		**3148**	**330**	**2782**	**284**

Note: Minimum 200 Pcs should be taken on each fraction of test

Flakiness Index(%):	10.48
Elongation Index(%):	10.21
Combined FI+EL (%)	20.69

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4.The material used in the site satisfied the standard of MORTH's 5th revision and hence can be used in the work.

Consultant's Representative

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Contractor	M/S Benaka Developers and Projects Pvt Ltd

AGGREGATE IMPACT VALUE (IS: 2386 Part - 4)

Proposed Use	WMM	**Date of Sampling**	**15-10-2021**
Sample Location	Kuvempu Badavane Mn Rd	**Date of Testing**	**16-10-2021**

Sl. No.	Description		Test No. 1	Test No. 2	Test No. 3	Spec Limit (%)
1	Wt. of stone pieces (dry) passing IS Sieve 12.5mm but retained in IS sieve 10mm (gm)	(Wa)	391.00	362.00	388.00	
2	Wt. of the fraction retained in IS sieve 2.36mm after the impact test (gm)	(Wb)	298.00	278.00	295.00	
3	Wt. of the fraction passed in IS sieve 2.36mm after the impact test (gm)	(Wc)	93.00	84.00	93.00	
4	Aggregate Impact Value (%)	(Wc/Wa)*100	23.79	23.20	23.97	
5	Average Aggregate impact value	(%)	23.65			Max - 30 %

Remarks : Satisfactory / Not Satisfactory

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Client	:	Bruhat Bengaluru Mahanagara Palike
Consultant	:	TEJUS CONSULTANTS, BANGALORE
Contractor	:	M/S Benaka Developers and Projects Pvt Ltd
Date of Testing	:	19-10-2021
Type of Mix	:	WMM
Sample I/D	:	WMM 8

GRADATION FOR WMM
(As per MORT&H 400-11)

Sample Location:	Kuvempu Badavane	Date of Sampling:	18-10-2021
		Date of testing:	19-10-2021
Type of material & Purpose:	WMM	Oven Dry Wt.(gms):	10000.0

IS Sieve size in mm	Weight retained	Cummulative weight retained (gm)	Cummulative % of retained	Cummulative % of passing	Specification limits
53	0	0	0.00	100.00	100.00
45	359	359	3.59	96.41	95-100
22.4	1788	2147	21.47	78.53	60-80
11.2	2252	4399	43.99	56.01	40-60
4.75	2022.0	6421	64.21	35.79	25-40
2.36	1395.0	7816	78.16	21.84	15-30
0.6	770.0	8586	85.86	14.14	8.0-22.0
0.075	890.0	9476	94.76	5.24	0-8
Pan	524.0	10000			
Total	10000.0				

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Contractor	M/S Benaka Developers and Projects Pvt Ltd

FLAKINESS AND ELONGATION INDICES (IS 2386, PART I)

Type of Material	WMM	**Proposed Use**	**WMM**
Sample Location	Kuvempu Badavane	**Date of Sampling**	**18-10-2021**
		Date of Testing	**19-10-2021**

Size of aggregate		Flakiness Index		Elongation Index	
Passing through IS sieve, mm	Retained on IS sieve, mm	Total wt. of aggregate retained on sieves (A) gms.	Wt. of aggregate passing from Flakiness gauge (B) gms	Wt. of aggregate retained on Flakiness gauge (C) gms	Wt. of aggregate retained on Elongation gauge after retained on Flakiness gauge(D)gms
63.0	50.0	0	0	0	0
50.0	40.0	0	0	0	0
40.0	31.5	0	0	0	0
31.5	25.0	0	0	0	0
25.0	20.0	0	0	0	0
20.0	16.0	609	84	526	75
16.0	12.5	1150	125	986	112
12.5	10.0	779	59	730	52
10.0	6.3	622	62	569	50
Total		**3160**	**330**	**2811**	**289**

Note: Minimum 200 Pcs should be taken on each fraction of test

Flakiness Index(%):	10.44
Elongation Index(%):	10.28
Combined FI+EL (%)	20.72

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Client	Bruhat Bengaluru Mahanagara Palike
Consultant	TEJUS CONSULTANTS, BANGALORE
Contractor	M/S Benaka Developers and Projects Pvt Ltd

Field Dry Density test by Sand Replacement Method (As per IS 2720 (Part 28)

	Date:	19-10-2021
Layer no. or level	WMM I layer	
Depth of hole	200mm	
Field density:	1	2
Chainage	Kuvempu Badavane Mn Rd at Ch:37	Kuvempu Badavane Mn Rd at Ch:96
Wt. of wet material from hole (Ww) gms.	5989	5993
Wt. of sand+cylinder before pouring (w1) gms.	15000	15000
Wt. of sand+cylinder after pouring (w2) gms.	10597	10595
Wt. of sand in hole+ cone (w3) gms.	4403	4405
Wt. of cone gms.	1080	1080
Wt. of sand gms.	3323	3325
Bulk density of sand (ys)gm/cc	1.32	1.32
Bulk density of material(i.e. wt. of the wet material) (yb)=(Ww/w4*(ys))gm/cc	2.38	2.38
Moisture meter reading(moisture content)	6.40	6.20
Result		
FDD(Wt.of the dry material)=(100γb/100+mc)gm/cc	2.24	2.24
MDD	2.27	2.27
OMC	6.10%	6.10%
% compaction obtained	98.50	98.69
% compaction required	98%	98%

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Client	Bruhat Bengaluru Mahanagara Palike
Consultant	TEJUS CONSULTANTS, BANGALORE
Contractor	M/S Benaka Developers and Projects Pvt Ltd

Field Dry Density test by Sand Replacement Method (As per IS 2720 (Part 28)

	Date:	**22-10-2021**
Layer no. or level	WMM I layer	
Depth of hole	200mm	
Field density:	**1**	**2**
Chainage	**2nd Main Rd Kuvempu layout at Ch:104**	**2nd Main Rd Kuvempu layout at Ch:247**
Wt. of wet material from hole (Ww) gms.	5975	5995
Wt. of sand+cylinder before pouring (w1) gms.	15000	15000
Wt. of sand+cylinder after pouring (w2) gms.	10596	10585
Wt. of sand in hole+ cone (w3) gms.	4404	4415
Wt. of cone gms.	1080	1080
Wt. of sand gms.	3324	3335
Bulk density of sand (ys)gm/cc	1.32	1.32
Bulk density of material(i.e. wt. of the wet material) (yb)=(Ww/w4*(ys))gm/cc	2.37	2.37
Moisture meter reading(moisture content)	6.30	6.30
Result		
FDD(Wt.of the dry material)=(100γb/100+mc)gm/cc	2.23	2.23
MDD	2.27	2.27
OMC	6.10%	6.10%
% compaction obtained	98.33	98.34
% compaction required	98%	98%

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Client	:	Bruhat Bengaluru Mahanagara Palike
Consultant	:	TEJUS CONSULTANTS Basaveshwar Nagar Bangalore
Contractor	:	M/S Benaka Developers and Projects Pvt Ltd
Date of Testing	:	23-10-2021
Type of Mix	:	WMM
Sample I/D	:	WMM 9

GRADATION FOR WMM
(As per MORT&H 400-11)

Sample Location:	Balajikrupa Layout Main Road	Date of Sampling:	22-10-2021
		Date of testing:	23-10-2021
Type of material & Purpose:	WMM	Oven Dry Wt.(gms):	10000.0

IS Sieve size in mm	Weight retained	Cummulative weight retained (gm)	Cummulative % of retained	Cummulative % of passing	Specification limits
53	0	0	0.00	100.00	100.00
45	395	395	3.95	96.05	95-100
22.4	1780	2175	21.75	78.25	60-80
11.2	2592	4767	47.67	52.33	40-60
4.75	2015.0	6782	67.82	32.18	25-40
2.36	796.0	7578	75.78	24.22	15-30
0.6	822.0	8400	84.00	16.00	8.0-22.0
0.075	995.0	9395	93.95	6.05	0-8
Pan	605.0	10000			
Total	10000.0				

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Client	Bruhat Bengaluru Mahanagara Palike	
Consultant	TEJUS CONSULTANTS Basaveshwar Nagar Bangalore	
Contractor	M/S Benaka Developers and Projects Pvt Ltd	
Field Dry Density test by Sand Replacement Method (As per IS 2720 (Part 28)		
	Date:	**23-10-2021**
Layer no. or level	WMM I layer	
Depth of hole	200mm	
Field density:	1	2
Chainage	Balajikrupa Layout at Ch:104	Balajikrupa Layout at Ch:241
Wt. of wet material from hole (Ww) gms.	5979	5988
Wt. of sand+cylinder before pouring (w1) gms.	15000	15000
Wt. of sand+cylinder after pouring (w2) gms.	10595	10595
Wt. of sand in hole+ cone (w3) gms.	4405	4405
Wt. of cone gms.	1080	1080
Wt. of sand gms.	3325	3325
Bulk density of sand (γs)gm/cc	1.32	1.32
Bulk density of material(i.e. wt. of the wet material) (γb)=(Ww/w4*(γs))gm/cc	2.37	2.38
Moisture meter reading(moisture content)	6.30	6.30
Result		
FDD(Wt.of the dry material)=(100γb/100+mc)gm/cc	2.23	2.24
MDD	2.27	2.27
OMC	6.10%	6.10%
% compaction obtained	98.37	98.52
% compaction required	98%	98%

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Consultant	TEJUS CONSULTANTS Basaveshwar Nagar Bangalore
Contractor	M/S Benaka Developers and Projects Pvt Ltd

Field Dry Density test by Sand Replacement Method (As per IS 2720 (Part 28)

	Date:	23-10-2021
Layer no. or level	WMM I layer	
Depth of hole	200mm	
Field density:	1	2
Chainage	**Balajikrupa Layout at Ch:104**	**Balajikrupa Layout at Ch:241**
Wt. of wet material from hole (Ww) gms.	5979	5988
Wt. of sand+cylinder before pouring (w1) gms.	15000	15000
Wt. of sand+cylinder after pouring (w2) gms.	10595	10595
Wt. of sand in hole+ cone (w3) gms.	4405	4405
Wt. of cone gms.	1080	1080
Wt. of sand gms.	3325	3325
Bulk density of sand (ys)gm/cc	1.32	1.32
Bulk density of material(i.e. wt. of the wet material) (yb)=(Ww/w4*(ys))gm/cc	2.37	2.38
Moisture meter reading(moisture content)	6.30	6.30
Result		
FDD(Wt.of the dry material)=(100γb/100+mc)gm/cc	2.23	2.24
MDD	2.27	2.27
OMC	6.10%	6.10%
% compaction obtained	98.37	98.52
% compaction required	98%	98%

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Contractor	M/S Benaka Developers and Projects Pvt Ltd

AGGREGATE IMPACT VALUE (IS: 2386 Part - 4)

Proposed Use	WMM	Date of Sampling	25-10-2021
Sample Location	Emera land 1st cross Road	Date of Testing	26-10-2021

Sl. No.	Description		Test No. 1	Test No. 2	Test No. 3	Spec Limit (%)
1	Wt. of stone pieces (dry) passing IS Sieve 12.5mm but retained in IS sieve 10mm (gm)	(Wa)	371.00	362.00	349.00	
2	Wt. of the fraction retained in IS sieve 2.36mm after the impact test (gm)	(Wb)	285.00	276.00	268.00	
3	Wt. of the fraction passed in IS sieve 2.36mm after the impact test (gm)	(Wc)	86.00	86.00	81.00	
4	Aggregate Impact Value (%)	(Wc/Wa)*100	23.18	23.76	23.21	
5	Average Aggregate impact value	(%)	23.38			Max - 30 %

Remarks : ✓ Satisfactory / Not Satisfactory

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Contractor	M/S Benaka Developers and Projects Pvt Ltd

FLAKINESS AND ELONGATION INDICES (IS 2386, PART 1)

Type of Material	WMM	Proposed Use	WMM
Sample Location	Emera land 1st cross Road	Date of Sampling	25-10-2021
		Date of Testing	26-10-2021

Size of aggregate		Flakiness Index		Elongation Index	
Passing through IS sieve, mm	Retained on IS sieve, mm	Total wt. of aggregate retained on sieves (A) gms.	Wt. of aggregate passing from Flakiness gauge (B) gms	Wt. of aggregate retained on Flakiness gauge (C) gms	Wt. of aggregate retained on Elongation gauge after retained on Flakiness gauge(D)gms
63.0	50.0	0	0	0	0
50.0	40.0	0	0	0	0
40.0	31.5	0	0	0	0
31.5	25.0	0	0	0	0
25.0	20.0	0	0	0	0
20.0	16.0	615	85	523	73
16.0	12.5	1125	112	980	110
12.5	10.0	775	55	735	56
10.0	6.3	610	69	562	50
Total		3125	321	2800	289

Note: Minimum 200 Pcs should be taken on each fraction of test

Flakiness Index(%):	10.27
Elongation Index(%):	10.32
Combined FI+EL (%)	20.59

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TEJUS

Name of Work	:	Improvements to roads and drains at Agrahara and surrounding area in Ward No 05 Byatarayanapura sub division
Client	:	Bruhat Bengaluru Mahanagara Palike
Consultant	:	TEJUS CONSULTANTS Basaveshwar Nagar Bangalore
Contractor	:	M/S Benaka Developers and Projects Pvt Ltd
Date of Testing	:	26-10-2021
Type of Mix	:	WMM
Sample I/D	:	WMM 10

GRADATION FOR WMM
(As per MORT&H 400-11)

Sample Location:	Emera land 1st cross Road	Date of Sampling:	25-10-2021
		Date of testing:	26-10-2021
Type of material & Purpose:	WMM	Oven Dry Wt.(gms):	10000.0

IS Sieve size in mm	Weight retained	Cummulative weight retained (gm)	Cummulative % of retained	Cummulative % of passing	Specification limits
53	0	0	0.00	100.00	100.00
45	369	369	3.69	96.31	95-100
22.4	2355	2724	27.24	72.76	60-80
11.2	2488	5212	52.12	47.88	40-60
4.75	1582.0	6794	67.94	32.06	25-40
2.36	789.0	7583	75.83	24.17	15-30
0.6	825.0	8408	84.08	15.92	8.0-22.0
0.075	993.0	9401	94.01	5.99	0-8
Pan	599.0	10000			
Total	10000.0				

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TEJUS
CONSULTANTS

Project	Improvements to roads and drains at Agrahara and surrounding area in Ward No 05 Byatarayanapura sub division
Client	Bruhat Bengaluru Mahanagara Palike
Consultant	TEJUS CONSULTANTS Basaveshwar Nagar Bangalore
Contractor	M/S Benaka Developers and Projects Pvt Ltd

Field Dry Density test by Sand Replacement Method (As per IS 2720 (Part 28)

	Date:	**28-10-2021**
Layer no. or level	WMM I layer	
Depth of hole	200mm	
Field density:	**1**	**2**
Chainage	**Emera land 1st cross Road at Ch:83**	**Emera land 1st cross Road at Ch:196**
Wt. of wet material from hole (Ww) gms.	5993	5985
Wt. of sand+cylinder before pouring (w1) gms.	15000	15000
Wt. of sand+cylinder after pouring (w2) gms.	10586	10597
Wt. of sand in hole+ cone (w3) gms.	4414	4403
Wt. of cone gms.	1080	1080
Wt. of sand gms.	3334	3323
Bulk density of sand (ys)gm/cc	1.32	1.32
Bulk density of material(i.e. wt. of the wet material) (yb)=(Ww/w4*(ys))gm/cc	2.37	2.38
Moisture meter reading(moisture content)	6.30	6.30
Result		
FDD(Wt.of the dry material)=(100γb/100+mc)gm/cc	2.23	2.24
MDD	2.27	2.27
OMC	6.10%	6.10%
% compaction obtained	98.33	98.53
% compaction required	98%	98%

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TEST REPORT

Clients	Bruhat Bangalore Mahanagara Palike	
Project	2.Improvements to roads and drains at Agrahara and surrounding area in Ward No 05 Byatarayanapura sub division	
Consultants	TEJUS CONSULTANTS	
Contractor	M/S Benaka Developers and Projects Pvt Ltd	
Total Weight:	10000	gms

SIEVE ANALYSIS

Type of Material	**12.5 mm down size**	**Proposed Use**	CONCRETE
Sample Location	MS Nagara Road	**Date of Sampling**	12-11-2021
		Date of Testing	13-11-2021

IS Sieve Size (in mm)	Weight Retained	Cum. Weight Retained	Cum. % Retained	Cum. % Passing	Spec. Limit (%) Passing
20.0	0	0	0	100	100
12.5	528	528	5.28	94.72	90-100
10.0	4579	5107	51.07	48.93	40-85
4.75	4318	9425	94.25	5.75	0-10
Pan	575	10000			

Remarks : ✓ Satisfactory / Not Satisfactory

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TEST REPORT

Clients	Bruhat Bangalore Mahanagara Palike	
Project	2.Improvements to roads and drains at Agrahara and surrounding area in Ward No 05 Byatarayanapura sub division	
Consultants	TEJUS CONSULTANTS Basaveshwar Nagar Bangalore	
Contractor	M/S Benaka Developers and Projects Pvt Ltd	
Total Weight:	10000	gms

SIEVE ANALYSIS

Type of Material	20 mm down size	Proposed Use	Coping Concrete
Sample Location	MS Nagara Road	Date of Sampling	12-11-2021
		Date of Testing	13-11-2021

IS Sieve Size	Weight Retained	Cum. Weight Retained	Cum. % Retained	Cum. % Passing	Spec. Limit (%) Passing
40.00 mm	0	0	0	100	100
20.00 mm	296	296	2.96	97.04	95 - 100
10.00 mm	4652	4948	49.48	50.52	25 - 55
4.75 mm	4361	9309	93.09	6.91	0 - 10
Pan	691	10000			

Remarks : ✓ Satisfactory / Not Satisfactory

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TEST REPORT

Clients	BRUHAT BENGALORE MAHANAGARA PALIKE
Project	2.Improvements to roads and drains at Agrahara and surrounding area in Ward No 05 Byatarayanapura sub division
Consultants	TEJUS CONSULTANTS Basaveshwar Nagar Bangalore
Contractor	M/S Benaka Developers and Projects Pvt Ltd

SPECIFIC GRAVITY AND WATER ABSORPTION

FINE AGGREGATE (IS-2386-PART-3)

Type of Material	M sand	**Proposed Use**	Coping concrete
Location/Source	MS Nagara Road	**Date of Sampling**	12-11-2021
Period of Soaking	24 hours	**Date of Testing**	13-11-2021

Sl. No.	Test Property	TRIAL - 1	TRIAL - 2	TRIAL - 3	
A	Weight of sturated surface dry sample gm.	653	645	639	
B	Weight of oven - dry sample gm.	645	636	630	
C	Weight of Pycnometer Filled with water gm	1275	1275	1275	
D	Weight of Pycnometer + sample + water gm	1685	1680	1677	
E	Bulk specific gravity $\frac{B}{(C+A-D)}$	2.654	2.650	2.658	2.654
G	Absorption (%) $\frac{(A-B)*100}{B}$	1.240	1.415	1.429	1.361

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Test Report on Cement

TEJUS CONSULTANTS

Project	2.Improvements to roads and drains at Agrahara and surrounding area in Ward No 05 Byatarayanapura sub division
Client	Bruhat Bangalore Mahanagar Palike
Consultant	TEJUS CONSULTANTS
Contractor	M/S Benaka Developers and Projects Pvt Ltd
Sample ID	Cement (ACC Cement) OPC 43 Grade
Date of Sample Tested	13-11-2021
Sample Supplied By	Agency

Sl.No.	Descriptions	Test Method as per IS	Test Result	Requirements as per IS: 12269-1987
1	a) Initial Setting Time	IS-4031 (Part-5)	103 Minutes	Not Less than 30 Minutes
	b) Final Setting Time	IS-4031 (Part-5)	454 Minutes	Not More than 600 Minutes
2	Soundness	IS-4031 (Part-3) By the Le-Chatelier method	7mm	Not More than 10 mm
3	Standard Consistency	IS-4031 (Part-4)	28.00%	25 % to 35

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TEST REPORT

TEJUS

Clients	Bruhat Bangalore Mahanagara Palike
Project	2.Improvements to roads and drains at Agrahara and surrounding area in Ward No 05 Byatarayanapura sub division
Consultants	Tejus Consultants, Bangaloro
Contractor	M/S Benaka Developers and Projects Pvt Ltd

SIEVE ANALYSIS

Total Weight:	3000 gms		
Type of Material	M sand	Proposed Use	Coping concrete
Sample Location	MS Nagara Road	Date of Sampling	13-11-2021
		Date of Testing	13-11-2021

IS Sieve Size	Weight Retained	Cum. Weight Retained	Cum. % Retained	Cum. % Passing	Spec. Limit (%) Passing (Zone-II)
10.00 mm	0	0	0	100.00	100
4.75 mm	216	216	7.20	92.80	90 - 100
2.36 mm	335	551	18.37	81.63	75 - 100
1.18 mm	425	976	32.53	67.47	55 - 90
0.600 mm	492	1468	48.93	51.07	35 -59
0.300 mm	715	2183	72.77	27.23	8-30
0.150 mm	641	2824	94.13	5.87	0 - 10
Pan	176	3000			-

Remarks : ✓ Satisfactory / Not Satisfactory

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BRUHAT BANGALORE MAHANAGARA PALIKE
BYTARAYANPURA DIVISION

Name of Work: Package 2 Consists of 3 Works of Rs.1100.00 Lakhs

3. Improvements to roads and drains at Hegdenagar and surrounding area in Ward No 06 Byatarayanapura sub division.

TEST REPORTS

SECOND & PART BILL

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Bangalore-560079
☎ 080 - 23287532
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CONSULTANTS

Name of Work	:	Improvements to roads and drains at Hegdenagar and surrounding area in Ward No 06 Byatarayanapura sub division
Client	:	Bruhat Bengaluru Mahanagara Palike
Consultant	:	TEJUS CONSULTANTS, BANGALORE
Contractor	:	M/S Benaka Developers and Projects Pvt Ltd
Date of Testing	:	02-10-2021
Type of Mix	:	WMM
Sample I/D	:	WMM 1

GRADATION FOR WMM
(As per MORT&H 400-11)

Sample Location:	Shirdi Sai Rathan Layout	Date of Sampling:	01-10-2021
		Date of testing:	02-10-2021
Type of material & Purpose:	WMM	Oven Dry Wt.(gms):	10000.0

IS Sieve size in mm	Weight retained	Cummulative weight retained (gm)	Cummulative % of retained	Cummulative % of passing	Specification limits
53	0	0	0.00	100.00	100.00
45	372	370	3.70	96.30	95-100
22.4	1800	2170	21.70	78.30	60-80
11.2	2251	4421	44.21	55.79	40-60
4.75	2011.0	6432	64.32	35.68	25-40
2.36	1390.0	7822	78.22	21.78	15-30
0.6	770.0	8592	85.92	14.08	8.0-22.0
0.075	882.0	9474	94.74	5.26	0-8
Pan	526.0	10000			
Total	10000.0				

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Client	Bruhat Bengaluru Mahanagara Palike
Consultant	TEJUS CONSULTANTS, BANGALORE
Contractor	M/S Benaka Developers and Projects Pvt Ltd

FLAKINESS AND ELONGATION INDICES (IS 2386, PART 1)

Type of Material	WMM	**Proposed Use**	**WMM**
Sample Location	Shirdi Sai Rathan Layout	**Date of Sampling**	**01-10-2021**
		Date of Testing	**02-10-2021**

Size of aggregate		**Flakiness Index**		**Elongation Index**	
Passing through IS sieve, mm	**Retained on IS sieve, mm**	**Total wt. of aggregate retained on sieves (A) gms.**	**Wt. of aggregate passing from Flakiness gauge (B) gms**	**Wt. of aggregate retained on Flakiness gauge (C) gms**	**Wt. of aggregate retained on Elongation gauge after retained on Flakiness gauge(D)gms**
63.0	50.0	0	0	0	0
50.0	40.0	0	0	0	0
40.0	31.5	0	0	0	0
31.5	25.0	0	0	0	0
25.0	20.0	0	0	0	0
20.0	16.0	645	75	542	75
16.0	12.5	1139	128	985	109
12.5	10.0	775	55	730	60
10.0	6.3	618	62	540	55
Total		**3177**	**320**	**2797**	**299**

Note: Minimum 200 Pcs should be taken on each fraction of test

		Flakiness Index(%):	10.07		
		Elongation Index(%):	10.69		
		Combined FI+EL (%)	20.76		

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Project	Improvements to roads and drains at Hegdenagar and surrounding area in Ward No 06 Byatarayanapura sub division
Client	Bruhat Bengaluru Mahanagara Palike
Consultant	TEJUS CONSULTANTS, BANGALORE
Contractor	M/S Benaka Developers and Projects Pvt Ltd

AGGREGATE IMPACT VALUE (IS: 2386 Part - 4)

Proposed Use	WMM	**Date of Sampling**	**01-10-2021**
Sample Location	Shirdi Sai Rathan Layout	**Date of Testing**	**02-10-2021**

Sl. No.	Description		Test No. 1	Test No. 2	Test No. 3	Spec Limit (%)
1	Wt. of stone pieces (dry) passing IS Sieve 12.5mm but retained in IS sieve 10mm (gm)	(Wa)	359.00	366.00	345.00	
2	Wt. of the fraction retained in IS sieve 2.36mm after the impact test (gm)	(Wb)	275.00	280.00	265.00	
3	Wt. of the fraction passed in IS sieve 2.36mm after the impact test (gm)	(Wc)	84.00	86.00	80.00	
4	Aggregate Impact Value (%)	(Wc/Wa)*100	23.40	23.50	23.19	
5	Average Aggregate impact value	(%)	23.36			Max - 30 %

Remarks : ✓ Satisfactory / Not Satisfactory

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Project	Improvements to roads and drains at Hegdenagar and surrounding areas in Ward No 06 Byatarayanapura sub division
Client	Bruhat Bengaluru Mahanagara Palike
Consultant	TEJUS CONSULTANTS, BANGALORE
Contractor	M/S Benaka Developers and Projects Pvt Ltd

Field Dry Density test by Sand Replacement Method (As per IS 2720 (Part 28)

Date of Testing	05-10-2021	
Layer no. or level	WMM I layer	
Depth of hole	200mm	
Field density:	1	2
Chainage	**Shirdi Sai Rathan 2nd crs at Ch:39**	**Shirdi Sai Rathan 2nd crs at Ch:86**
Wt. of wet material from hole (Ww) gms.	5992	5985
Wt. of sand+cylinder before pouring (w1) gms.	15000	15000
Wt. of sand+cylinder after pouring (w2) gms.	10595	10590
Wt. of sand in hole+ cone (w3) gms.	4405	4410
Wt. of cone gms.	1080	1080
Wt. of sand gms.	3325	3330
Bulk density of sand (γs)gm/cc	1.32	1.32
Bulk density of material(i.e. wt. of the wet material) (γb)=(Ww/w4*(γs))gm/cc	2.38	2.37
Moisture meter reading(moisture content)	6.20	6.40
Result		
FDD(Wt.of the dry material)=(100γb/100+mc)gm/cc	2.24	2.23
MDD	2.27	2.27
OMC	6.10%	6.10%
% compaction obtained	98.67	98.23
% compaction required	98%	98%

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Project	Improvements to roads and drains at Hegdenagar and surrounding area in Ward No 06 Byatarayanapura sub division
Client	Bruhat Bengaluru Mahanagara Palike
Consultant	TEJUS CONSULTANTS, BANGALORE
Contractor	M/S Benaka Developers and Projects Pvt Ltd

Field Dry Density test by Sand Replacement Method (As per IS 2720 (Part 28)

Date: 08-10-2021

Layer no. or level	WMM I layer	
Depth of hole	200mm	
Field density:	1	2
Chainage	**Shirdi Sai Rathan 1st cross at Ch:47**	**Shirdi Sai Rathan 1st cross at Ch:102**
Wt. of wet material from hole (Ww) gms.	5975	5984
Wt. of sand+cylinder before pouring (w1) gms.	15000	15000
Wt. of sand+cylinder after pouring (w2) gms.	10593	10590
Wt. of sand in hole+ cone (w3) gms.	4407	4410
Wt. of cone gms.	1080	1080
Wt. of sand gms.	3327	3330
Bulk density of sand (γs)gm/cc	1.32	1.32
Bulk density of material(i.e. wt. of the wet material) (γb)=(Ww/w4*(γs))gm/cc	2.37	2.37
Moisture meter reading(moisture content)	6.30	6.30
Result		
FDD(Wt.of the dry material)=(100γb/100+mc)gm/cc	2.23	2.23
MDD	2.27	2.27
OMC	6.10%	6.10%
% compaction obtained	98.24	98.30
% compaction required	98%	98%

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TEJUS CONSULTANTS

Consultant's Representative

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CONSULTANTS

Name of Work	:	Improvements to roads and drains at Hegdenagar and surrounding area in Ward No 06 Byatarayanapura sub division
Client	:	Bruhat Bengaluru Mahanagara Palike
Consultant	:	TEJUS CONSULTANTS, BANGALORE
Contractor	:	M/S Benaka Developers and Projects Pvt Ltd
Date of Testing	:	26-11-2021
Type of Mix	:	WMM
Sample I/D	:	WMM 2

GRADATION FOR WMM
(As per MORT&H 400-11)

Sample Location:	Hegdenagar 5th Cross Roads	**Date of Sampling:**	25-11-2021
		Date of testing:	26-11-2021
Type of material & Purpose:	WMM	**Oven Dry Wt.(gms):**	10000.0

IS Sieve size in mm	Weight retained	Cummulative weight retained (gm)	Cummulative % of retained	Cummulative % of passing	Specification limits
53	0	0	0.00	100.00	100.00
45	392	392	3.92	96.08	95-100
22.4	2388	2780	27.80	72.20	60-80
11.2	2485	5265	52.65	47.35	40-60
4.75	1456.0	6721	67.21	32.79	25-40
2.36	790.0	7511	75.11	24.89	15-30
0.6	852.0	8363	83.63	16.37	8.0-22.0
0.075	992.0	9355	93.55	6.45	0-8
Pan	645.0	10000			
Total	10000.0				

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Client	Bruhat Bengaluru Mahanagara Palike
Consultant	TEJUS CONSULTANTS, BANGALORE
Contractor	M/S Benaka Developers and Projects Pvt Ltd

FLAKINESS AND ELONGATION INDICES (IS 2386, PART 1)

Type of Material		WMM		**Proposed Use**	**WMM**
Sample Location		Hegdenagar 5th Cross Roads		**Date of Sampling**	**25-11-2021**
				Date of Testing	**26-11-2021**
Size of aggregate		**Flakiness Index**		**Elongation Index**	
Passing through IS sieve, mm	**Retained on IS sieve, mm**	**Total wt. of aggregate retained on sieves (A) gms.**	**Wt. of aggregate passing from Flakiness gauge (B) gms**	**Wt. of aggregate retained on Flakiness gauge (C) gms**	**Wt. of aggregate retained on Elongation gauge after retained on Flakiness gauge(D)gms**
63.0	50.0	0	0	0	0
50.0	40.0	0	0	0	0
40.0	31.5	0	0	0	0
31.5	25.0	0	0	0	0
25.0	20.0	0	0	0	0
20.0	16.0	625	82	524	72
16.0	12.5	1135	125	1002	120
12.5	10.0	769	66	742	52
10.0	6.3	619	59	575	44
Total		**3148**	**332**	**2843**	**288**

Note: Minimum 200 Pcs should be taken on each fraction of test

Flakiness Index(%):	10.55
Elongation Index(%):	10.13
Combined FI+EL (%)	20.68

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TEJUS
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Project	Improvements to roads and drains at Hegdenagar and surrounding area in Ward No 06 Byatarayanapura sub division
Client	Bruhat Bengaluru Mahanagara Palike
Consultant	TEJUS CONSULTANTS, BANGALORE
Contractor	M/S Benaka Developers and Projects Pvt Ltd

AGGREGATE IMPACT VALUE (IS: 2386 Part - 4)

Proposed Use	WMM	Date of Sampling	25-11-2021
Sample Location	Hegdenagar 5th Cross Roads	Date of Testing	26-11-2021

Sl. No.	Description		Test No. 1	Test No. 2	Test No. 3	Spec Limit (%)
1	Wt. of stone pieces (dry) passing IS Sieve 12.5mm but retained in IS sieve 10mm (gm)	(Wa)	375.00	354.00	341.00	
2	Wt. of the fraction retained in IS sieve 2.36mm after the impact test (gm)	(Wb)	286.00	272.00	262.00	
3	Wt. of the fraction passed in IS sieve 2.36mm after the impact test (gm)	(Wc)	89.00	82.00	79.00	
4	Aggregate Impact Value (%)	(Wc/Wa)*100	23.73	23.16	23.17	
5	Average Aggregate impact value	(%)	23.35			Max - 30 %

Remarks : Satisfactory / Not Satisfactory

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Project	Improvements to roads and drains at Hegdenagar and surrounding area in Ward No 06 Byatarayanapura sub division
Client	Bruhat Bengaluru Mahanagara Palike
Consultant	TEJUS CONSULTANTS, BANGALORE
Contractor	M/S Benaka Developers and Projects Pvt Ltd

Field Dry Density test by Sand Replacement Method (As per IS 2720 (Part 28)

	Date:	**27-11-2021**
Layer no. or level	WMM I layer	
Depth of hole	200mm	
Field density:	**1**	**2**
Chainage	**Hegdnagar 1st crs Rd Ch:121.00**	**Hegdnagar 1st crs Rd Ch:223.00**
Wt. of wet material from hole (Ww) gms.	5979	5987
Wt. of sand+cylinder before pouring (w1) gms.	15000	15000
Wt. of sand+cylinder after pouring (w2) gms.	10596	10594
Wt. of sand in hole+ cone (w3) gms.	4404	4406
Wt. of cone gms.	1080	1080
Wt. of sand gms.	3324	3326
Bulk density of sand (ys)gm/cc	1.32	1.32
Bulk density of material(i.e. wt. of the wet material) (yb)=(Ww/w4*(ys))gm/cc	2.37	2.38
Moisture meter reading(moisture content)	6.30	6.30
Result		
FDD(Wt.of the dry material)=(100γb/100+mc)gm/cc	2.23	2.24
MDD	2.27	2.27
OMC	6.10%	6.10%
% compaction obtained	98.40	98.47
% compaction required	98%	98%

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Project	Improvements to roads and drains at Hegdenagar and surrounding area in Ward No 06 Byatarayanapura sub division
Client	Bruhat Bengaluru Mahanagara Palike
Consultant	TEJUS CONSULTANTS, BANGALORE
Contractor	M/S Benaka Developers and Projects Pvt Ltd

Field Dry Density test by Sand Replacement Method (As per IS 2720 (Part 28)

	Date:	30-11-2021
Layer no. or level	WMM I layer	
Depth of hole	200mm	
Field density:	1	2
Chainage	**Hegdnagar 5th crs Rd Ch:114.00**	**Hegdnagar 5th crs Rd Ch:203.00**
Wt. of wet material from hole (Ww) gms.	5996	5977
Wt. of sand+cylinder before pouring (w1) gms.	15000	15000
Wt. of sand+cylinder after pouring (w2) gms.	10591	10594
Wt. of sand in hole+ cone (w3) gms.	4409	4406
Wt. of cone gms.	1080	1080
Wt. of sand gms.	3329	3326
Bulk density of sand (ys)gm/cc	1.32	1.32
Bulk density of material(i.e. wt. of the wet material) (yb)=(Ww/w4*(ys))gm/cc	2.38	2.37
Moisture meter reading(moisture content)	6.40	6.20
Result		
FDD(Wt.of the dry material)=(100yb/100+mc)gm/cc	2.23	2.23
MDD	2.27	2.27
OMC	6.10%	6.10%
% compaction obtained	98.44	98.40
% compaction required	98%	98%

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CONSULTANTS

Name of Work	:	Improvements to roads and drains at Hegdenagar and surrounding area in Ward No 06 Byatarayanapura sub division
Client	:	Bruhat Bengaluru Mahanagara Palike
Consultant	:	TEJUS CONSULTANTS, BANGALORE
Contractor	:	M/S Benaka Developers and Projects Pvt Ltd
Date of Testing	:	03-12-2021
Type of Mix	:	WMM
Sample I/D	:	WMM 3

GRADATION FOR WMM
(As per MORT&H 400-11)

Sample Location:	2nd Cross Road (GKVK Double Rd to RKH 2nd Mn Rd)	Date of Sampling:	02-12-2021
		Date of testing:	03-12-2021
Type of material & Purpose:	WMM	Oven Dry Wt.(gms):	10000.0

IS Sieve size in mm	Weight retained	Cummulative weight retained (gm)	Cummulative % of retained	Cummulative % of passing	Specification limits
53	0	0	0.00	100.00	100.00
45	366	366	3.66	96.34	95-100
22.4	2412	2778	27.78	72.22	60-80
11.2	2433	5211	52.11	47.89	40-60
4.75	1486.0	6697	66.97	33.03	25-40
2.36	790.0	7487	74.87	25.13	15-30
0.6	842.0	8329	83.29	16.71	8.0-22.0
0.075	980.0	9309	93.09	6.91	0-8
Pan	691.0	10000			
Total	10000.0				

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TEJUS

Project	Improvements to roads and drains at Hegdenagar and surrounding area in Ward No 06 Byatarayanapura sub division
Client	Bruhat Bengaluru Mahanagara Palike
Consultant	TEJUS CONSULTANTS, BANGALORE
Contractor	M/S Benaka Developers and Projects Pvt Ltd

FLAKINESS AND ELONGATION INDICES (IS 2386, PART 1)

Type of Material	WMM	**Proposed Use**	**WMM**
Sample Location	2nd Cross Road (GKVK Double Rd to RKH 2nd Mn Rd)	**Date of Sampling**	**02-12-2021**
		Date of Testing	**03-12-2021**

Size of aggregate		Flakiness Index		Elongation Index	
Passing through IS sieve, mm	**Retained on IS sieve, mm**	**Total wt. of aggregate retained on sieves (A) gms.**	**Wt. of aggregate passing from Flakiness gauge (B) gms**	**Wt. of aggregate retained on Flakiness gauge (C) gms**	**Wt. of aggregate retained on Elongation gauge after retained on Flakiness gauge(D)gms**
63.0	50.0	0	0	0	0
50.0	40.0	0	0	0	0
40.0	31.5	0	0	0	0
31.5	25.0	0	0	0	0
25.0	20.0	0	0	0	0
20.0	16.0	610	85	522	72
16.0	12.5	1133	122	962	115
12.5	10.0	772	55	736	53
10.0	6.3	615	62	562	49
Total		**3130**	**324**	**2782**	**289**

Note: Minimum 200 Pcs should be taken on each fraction of test

Flakiness Index(%):	10.35
Elongation Index(%):	10.39
Combined FI+EL (%)	20.74

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Project	Improvements to roads and drains at Hegdenagar and surrounding area in Ward No 06 Byatarayanapura sub division
Client	Bruhat Bengaluru Mahanagara Palike
Consultant	TEJUS CONSULTANTS, BANGALORE
Contractor	M/S Benaka Developers and Projects Pvt Ltd

AGGREGATE IMPACT VALUE (IS: 2386 Part - 4)

Proposed Use	WMM	Date of Sampling	02-12-2021
Sample Location	2nd Cross Road (GKVK Double Rd to RKH 2nd Mn Rd)	Date of Testing	03-12-2021

Sl. No.	Description		Test No. 1	Test No. 2	Test No. 3	Spec Limit (%)
1	Wt. of stone pieces (dry) passing IS Sieve 12.5mm but retained in IS sieve 10mm (gm)	(Wa)	368.00	338.00	348.00	
2	Wt. of the fraction retained in IS sieve 2.36mm after the impact test (gm)	(Wb)	275.00	251.00	260.00	
3	Wt. of the fraction passed in IS sieve 2.36mm after the impact test (gm)	(Wc)	93.00	87.00	88.00	
4	Aggregate Impact Value (%)	(Wc/Wa)*100	25.27	25.74	25.29	
5	Average Aggregate impact value	(%)	25.43			Max - 30 %

Remarks : ✓ Satisfactory / Not Satisfactory

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Project	Improvements to roads and drains at Hegdenagar and surrounding area in Ward No 06 Byatarayanapura sub division
Client	Bruhat Bengaluru Mahanagara Palike
Consultant	TEJUS CONSULTANTS, BANGALORE
Contractor	M/S Benaka Developers and Projects Pvt Ltd

Field Dry Density test by Sand Replacement Method (As per IS 2720 (Part 28)

	Date:	**07-12-2021**
Layer no. or level	WMM I layer	
Depth of hole	200mm	
Field density:	**1**	**2**
Chainage	**BDS Layout 2nd 'A' c/s Rd at Ch:32**	**BDS Layout 2nd 'A' c/s Rd at Ch:63**
Wt. of wet material from hole (Ww) gms.	5975	5990
Wt. of sand+cylinder before pouring (w1) gms.	15000	15000
Wt. of sand+cylinder after pouring (w2) gms.	10595	10590
Wt. of sand in hole+ cone (w3) gms.	4405	4410
Wt. of cone gms.	1080	1080
Wt. of sand gms.	3325	3330
Bulk density of sand (ys)gm/cc	1.32	1.32
Bulk density of material(i.e. wt. of the wet material) (yb)=(Ww/w4*(ys))gm/cc	2.37	2.37
Moisture meter reading(moisture content)	6.40	6.20
Result		
FDD(Wt.of the dry material)=(100yb/100+mc)gm/cc	2.23	2.24
MDD	2.27	2.27
OMC	6.10%	6.10%
% compaction obtained	98.21	98.49
% compaction required	98%	98%

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TEST REPORT

Clients	BRUHAT BENGALORE MAHANAGARA PALIKE
Project	Improvements to roads and drains at Hegdenagar and surrounding area in Ward No 06 Byatarayanapura sub division
Consultants	TEJUS CONSULTANTS Basaveshwar Nagar Bangalore
Contractor	M/S Benaka Developers and Projects Pvt Ltd

SPECIFIC GRAVITY AND WATER ABSORPTION

FINE AGGREGATE (IS-2386-PART-3)

Type of Material	M sand	**Proposed Use**	concrete
Location/Source	Apoorva Enclave	**Date of Sampling**	12-12-2021
Period of Soaking	24 hours	**Date of Testing**	13-12-2021

Sl. No.	Test Property	TRIAL - 1	TRIAL - 2	TRIAL - 3	
A	Weight of sturated surface dry sample gm.	651	662	644	
B	Weight of oven - dry sample gm.	643	653	635	
C	Weight of Pycnometer Filled with water gm	1275	1275	1275	
D	Weight of Pycnometer + sample + water gm	1684	1691	1680	
E	Bulk specific gravity $\frac{B}{(C+A-D)}$	2.657	2.654	2.657	2.656
G	Absorption (%) $\frac{(A-B)*100}{B}$	1.244	1.378	1.417	1.347

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Authorised Signatory

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TEST REPORT

TEJUS CONSULTANTS

Clients	Bruhat Bangalore Mahanagara Palike				
Project	Improvements to roads and drains at Hegdenagar and surrounding area in Ward No 06 Byatarayanapura sub division				
Consultants	TEJUS CONSULTANTS Basaveshwar Nagar Bangalore				
Contractor	M/S Benaka Developers and Projects Pvt Ltd				
Total Weight:	10000	gms			

SIEVE ANALYSIS

Type of Material	20 mm down size	**Proposed Use**	Concrete
Sample Location	Apoorva Enclave	**Date of Sampling**	12-12-2021
		Date of Testing	13-12-2021

IS Sieve Size	Weight Retained	Cum. Weight Retained	Cum. % Retained	Cum. % Passing	Spec. Limit (%) Passing
40.00 mm	0	0	0	100	100
20.00 mm	293	293	2.93	97.07	95 - 100
10.00 mm	4635	4928	49.28	50.72	25 - 55
4.75 mm	4322	9250	92.50	7.50	0 - 10
Pan	750	10000			

Remarks : ✓ Satisfactory / Not Satisfactory

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4.The material used in the site satisfied the standard of MORTH's 5th revision and hence can be used in the work.

TEJUS CONSULTANTS

Authorised Signatory

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CONSULTANTS

TEST REPORT

Clients	Bruhat Bangalore Mahanagara Palike		
Project	Improvements to roads and drains at Hegdenagar and surrounding area in Ward No 06 Byatarayanapura sub division		
Consultants	TEJUS CONSULTANTS		
Contractor	M/S Benaka Developers and Projects Pvt Ltd		
Total Weight:	10000	gms	

SIEVE ANALYSIS

Type of Material	12.5 mm down size	**Proposed Use**	CONCRETE
Sample Location	Apoorva Enclave	**Date of Sampling**	12-12-2021
		Date of Testing	13-12-2021

IS Sieve Size (in mm)	Weight Retained	Cum. Weight Retained	Cum. % Retained	Cum. % Passing	Spec. Limit (%) Passing
20.0	0	0	0	100	100
12.5	542	542	5.42	94.58	90-100
10.0	4558	5100	51.00	49.00	40-85
4.75	4328	9428	94.28	5.72	0-10
Pan	572	10000			

Remarks : Satisfactory / Not Satisfactory

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Test Report on Cement

TEJUS CONSULTANTS

Project	Improvements to roads and drains at Hegdenagar and surrounding area in Ward No 06 Byatarayanapura sub division
Client	Bruhat Bangalore Mahanagar Palike
Consultant	TEJUS CONSULTANTS
Contractor	M/S Benaka Developers and Projects Pvt Ltd
Sample ID	Cement (ACC Cement) OPC 43 Grade
Date of Sample Tested	13-12-2021
Sample Supplied By	Agency

Sl.No.	Descriptions	Test Method as per IS	Test Result	Requirements as per IS: 12269-1987
1	a) Initial Setting Time	IS-4031 (Part-5)	105 Minutes	Not Less than 30 Minutes
	b) Final Setting Time	IS-4031 (Part-5)	452 Minutes	Not More than 600 Minutes
2	Soundness	IS-4031 (Part-3) By the Le-Chatelier method	6mm	Not More than 10 mm
3	Standard Consistency	IS-4031 (Part-4)	28.00%	25 % to 35

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TEST REPORT

Clients	Bruhat Bangalore Mahanagara Palike
Project	Improvements to roads and drains at Hegdenagar and surrounding area in Ward No 06 Byatarayanapura sub division
Consultants	Tejus Consultants, Bangalore
Contractor	M/S Benaka Developers and Projects Pvt Ltd

SIEVE ANALYSIS

Total Weight:	3000 gms		
Type of Material	M sand	Proposed Use	concrete
Sample Location	Apoorva Enclave	Date of Sampling	13-12-2021
		Date of Testing	13-12-2021

IS Sieve Size	Weight Retained	Cum. Weight Retained	Cum. % Retained	Cum. % Passing	Spec. Limit (%) Passing (Zone-II)
10.00 mm	0	0	0	100.00	100
4.75 mm	204	204	6.80	93.20	90 - 100
2.36 mm	331	535	17.83	82.17	75 - 100
1.18 mm	418	953	31.77	68.23	55 - 90
0.600 mm	492	1445	48.17	51.83	35 -59
0.300 mm	710	2155	71.83	28.17	8-30
0.150 mm	635	2790	93.00	7.00	0 - 10
Pan	210	3000			-

Remarks : ✓ Satisfactory / Not Satisfactory

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Name of Work	:	Improvements to roads and drains at Hegdenagar and surrounding area in Ward No 06 Byatarayanapura sub division
Client	:	Bruhat Bengaluru Mahanagara Palike
Consultant	:	TEJUS CONSULTANTS, BANGALORE
Contractor	:	M/S Benaka Developers and Projects Pvt Ltd
Date of Testing	:	15-12-2021
Type of Mix	:	WMM
Sample I/D	:	WMM 4

GRADATION FOR WMM
(As per MORT&H 400-11)

Sample Location:		Date of Sampling:	14-12-2021
	BDS Layout 1st c/s Rd	Date of testing:	15-12-2021
Type of material & Purpose:	WMM	Oven Dry Wt.(gms):	10000.0

IS Sieve size in mm	Weight retained	Cummulative weight retained (gm)	Cummulative % of retained	Cummulative % of passing	Specification limits
53	0	0	0.00	100.00	100.00
45	375	375	3.75	96.25	95-100
22.4	2375	2750	27.50	72.50	60-80
11.2	2477	5227	52.27	47.73	40-60
4.75	1568.0	6795	67.95	32.05	25-40
2.36	772.0	7567	75.67	24.33	15-30
0.6	805.0	8372	83.72	16.28	8.0-22.0
0.075	990.0	9362	93.62	6.38	0-8
Pan	638.0	10000			
Total	10000.0				

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Project	Improvements to roads and drains at Hegdenagar and surroundings area in Ward No 06 Byatarayanapura sub division
Client	Bruhat Bengaluru Mahanagara Palike
Consultant	TEJUS CONSULTANTS, BANGALORE
Contractor	M/S Benaka Developers and Projects Pvt Ltd

Field Dry Density test by Sand Replacement Method (As per IS 2720 (Part 28)

	Date:	**18-12-2021**
Layer no. or level	WMM I layer	
Depth of hole	200mm	
Field density:	**1**	**2**
Chainage	**BDS Layout 1st c/s Rdat Ch:46**	**BDS Layout 1st c/s Rdat Ch:92**
Wt. of wet material from hole (Ww) gms.	5977	5986
Wt. of sand+cylinder before pouring (w1) gms.	15000	15000
Wt. of sand+cylinder after pouring (w2) gms.	10588	10595
Wt. of sand in hole+ cone (w3) gms.	4412	4405
Wt. of cone gms.	1080	1080
Wt. of sand gms.	3332	3325
Bulk density of sand (ys)gm/cc	1.32	1.32
Bulk density of material(i.e. wt. of the wet material) (yb)=(Ww/w4*(ys))gm/cc	2.37	2.38
Moisture meter reading(moisture content)	6.30	6.30
Result		
FDD(Wt.of the dry material)=(100yb/100+mc)gm/cc	2.23	2.24
MDD	2.27	2.27
OMC	6.10%	6.10%
% compaction obtained	98.13	98.48
% compaction required	98%	98%

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PRECAST SLAB (CORE) TEST REPORT

Client	:	Bruhat Bangalore Mahanagara Palike
Contractor	:	Benaka Developers & Project Pvt.Ltd.
Name of Work	:	Improvements to roads and drains at Hegdenagar and surrounding area in Ward No 06 Byatarayanapura sub division.
No.of Sample Tested	:	3
Date of Testing	:	18-12-2021
Technical Reference	:	IS:516-1959 (Reaffirmed 1999), SP-24:1983.
Grade of Concrete	:	M15 .250mm Thick

Sl. No.	Dia of Core D (mm)	Height of Core H (mm)	Core Wt (Kg)	Density of Core (kg / m^3)	H / D	Correction factor (Based on H/D)	Failure Load (KN)	Core Strength (N/mm^2)	Correction Factor for the Dia. (Strength of the Core x 1.08)	Corrected Cylinder Compressive Strength (N/mm^2)	Equiva Cub Compr e Stren (N/mm
1	100.00	180.00	3.358	2375.30	1.80	0.960	123.00	15.66	16.91	16.24	20.30
2	100.00	180.00	3.347	2367.52	1.80	0.960	125.00	15.92	17.19	16.50	20.63
3	100.00	180.00	3.642	2576.19	1.80	0.960	122.00	15.53	16.78	16.11	20.13

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